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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,353	10/06/2003	Jae-Seung Baek	27427.015.00-US	1807

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EXAMINER

PERRY, ANTHONY T

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

874

Office Action Summary	Application No. 10/678,353	Applicant(s) BAEK ET AL.	
	Examiner Anthony T. Perry	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-35 is/are rejected.
 7) ☒ Claim(s) 12,30,34 and 35 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 06 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 recites a range that includes values for Rx_s/R_{yc} that are outside the range given in independent claim 1.

Claims 30 and 34-35 are objected to because of the following informalities: the claims do not recite what the values Rx_s and R_{yc} correspond to. Add --wherein Rx_s is defined as an inner curvature radius along an edge of a longer side of the panel; and wherein R_{yc} is defined as an inner curvature radius along a line in the center of the panel parallel to the shorter side of the panel.-- to the end of claim 30. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 14, 17-19, and 21-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe et al. (US 6,433,470).

Regarding claims 14 and 18, Watanabe discloses a color CRT comprising a panel (1) having a substantially flat outer surface and an inner surface having a certain curvature, a mask (6) having a plurality of electron beam passing holes, wherein an effective surface diagonal size

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of the panel is not greater than about 534mm (see Fig. 1). Watanabe teaches a panel wherein $R_{xs}/R_{yc} = 1.1$ (see col. 14, lines 53-65).

Regarding claim 17, Watanabe teaches the panel having an outer surface greater than about 30,000mm (col. 14, lines 1-9).

Regarding claim 19, Watanabe teaches the shadow mask has a thickness of 0.13mm (col. 4, lines 61-63).

Regarding claim 21, Watanabe teaches that the panel has a value for R_{yc} that is between 1.3R and 3.3R (col. 9, lines 6-23).

Regarding claim 22, Watanabe teaches that the panel has a value for R_{xs} that is between 1.8r and 5.8R (col. 10, lines 24-36).

Regarding claim 23, Watanabe teaches that the panel has a value for $R_{xs}/R_{ys} = 1.1$ (col. 10, lines 33-36).

Claims 24-25, 29, and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Pyun et al. (US 6,274,977).

Regarding claims 24-25, Pyun teaches a color CRT comprising a panel (8) having a substantially flat outer surface and an inner surface having a certain curvature, a mask (10) having a plurality of electron beam passing holes, wherein an effective surface diagonal size of the panel is about 534mm (see Figs. 1 and 3). Pyun lists values for a 25 inch CRT panel (considered by examiner to be about 534mm) of $T_x = 20\text{mm}$, $T_y = 20.8$, and $T_d = 25.4$ (see col. 3, lines 40-45). Pyun teaches that 15mm is an appropriate thickness of the center portion (T_c)

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(see col. 3, lines 47-51). $Z_y = T_y - T_c = 5.8\text{mm}$, $Z_x = T_x - T_c = 5\text{mm}$, and $Z_d = T_d - T_c = 10.4\text{mm}$.

Accordingly, Pyun teaches a panel with $Z_y = 0.56 * Z_d$ and $Z_x = 0.48 * Z_d$.

Regarding claim 29, Pyun teaches that the panel has a value for $T_d/T_c = 1.7$ (see rejection of claims 24-25, above).

Regarding claim 32, Pyun teaches that the panel has a value for $T_y/T_x = 1.0$ (see rejection of claims 24-25, above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) as applied to claim 14, above, in view of Pyun et al. (US 6,274,977).

Regarding claims 15-16, Watanabe does not specifically teach values for the thicknesses of the panel. However, Pyun lists thicknesses for a CRT including $T_x = 20\text{mm}$, $T_y = 20.8$, and $T_d = 25.4$ (see col. 3, lines 40-45). Pyun teaches that 15mm is an appropriate thickness of the center portion (T_c) (see col. 3, lines 47-51). Accordingly, Pyun teaches that $T_y/T_x = 1.0$ and $T_d/T_c = 1.7$. Pyun teaches that such peripheral thickness ratios contribute to reduce raster distortion and allow for a corresponding shadow mask with good structural strength (col. 3, lines 65 – col. 4, line 2). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the panel taught by Watanabe with thicknesses

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taught by Pyun in order to provide a CRT with low raster distortion and a shadow mask having an appropriate structural strength.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) as applied to claim 14, above, in view of Hu et al. (US 6,072,270).

Regarding claim 7, Watanabe does not specifically teach a shadow mask having a thickness between .10 and .12 mm. However, shadow masks having a thickness of .12mm are known, as evidenced by the Hu reference (see the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a shadow mask having a thickness of .12mm in order to reduce manufacturing costs of the CRT.

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pyun et al. (US 6,274,977).

Regarding claims 26-28, Pyun does not give specific values for the $Z(y/2)$, $Z(x/2)$, and $Z(d/2)$. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide optimum ranges for the $Z(y/2)$, $Z(x/2)$, and $Z(d/2)$, since optimization of workable ranges is considered within the skill of the art.

Claims 30 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pyun et al. (US 6,274,977) as applied to claim 24, above, in view of Watanabe et al. (US 6,433,470).

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Regarding claims 30 and 34-35, Pyun does not provide values for the radii of curvature of the inner surface of the panel. However, Watanabe teaches a panel wherein $R_{xs}/R_{yc} = 1.1$ (see col. 14, lines 53-65). Watanabe teaches that the panel has a value for R_{yc} that is between $1.3R$ and $3.3R$ (col. 9, lines 6-23) and a value for R_{xs} that is between $1.8r$ and $5.8R$ (col. 10, lines 32-33). Watanabe teaches that by providing the panel with such radii of curvature an improved feeling of flatness and improved drop strength can be attained (col. 15, lines 50-54). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the panel of the Pyun reference with the radii of curvature taught by Watanabe in order to improve the feeling of flatness and the drop strength of the mask.

Regarding claim 33, Watanabe teaches the shadow mask has a thickness of 0.13mm (col. 4, lines 61-63). Same reason for combination given in the rejection of claims 30 and 34-35 applies.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pyun et al. (US 6,274,977) as applied to claim 24, above, in view of Kang et al. (US 6,806,636).

Regarding claim 31, Pyun does not specifically mention the transmittance rate of the central portion of the panel. However, Kang teaches a tinted panel having a central portion transmittance rate of 60% (see col. 6, lines 5-14). Kang teaches that having a tinted film that has a transmissivity that increase closer to the panel's edge provides a CRT with a display brightness that is substantially uniform across the surface of the panel (see col. 6, lines 15-20). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a tinted film having a transmittance of 60%, as taught by Kang et

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al., to the panel of the Pyun reference in order to provide a CRT with a display brightness that is substantially uniform across the surface of the panel.

Claims 1, 4-6, and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) in view of Kang et al. (US 6,806,636).

Regarding claims 1, 5, and 12, Watanabe discloses a color CRT comprising a panel (1) having a substantially flat outer surface and an inner surface having a certain curvature, a mask (6) having a plurality of electron beam passing holes, wherein an effective surface diagonal size of the panel is not greater than about 534mm (see Fig. 1). Watanabe teaches a panel wherein $R_{xs}/R_{yc} = 1.1$ (see col. 14, lines 53-65). Watanabe remains silent about the transmittance of the central portion of the panel.

However, Kang teaches a tinted panel having a central portion transmittance rate of 60% (see col. 6, lines 5-14). Kang teaches that having a tinted film that has a transmissivity that increase closer to the panel's edge provides a CRT with a display brightness that is substantially uniform across the surface of the panel (see col. 6, lines 15-20). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a tinted film having a transmittance of 60%, as taught by Kang et al., to the panel of the Watanabe reference in order to provide a CRT with a display brightness that is substantially uniform across the surface of the panel.

Regarding claim 4, Watanabe teaches the panel having an outer surface greater than about 30,000mm (col. 14, lines 1-9).

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Regarding claim 6, Watanabe teaches the shadow mask has a thickness of 0.13mm (col. 4, lines 61-63).

Regarding claim 8, Watanabe teaches that the panel has a value for R_{yc} that is between 1.3R and 3.3R (col. 9, lines 6-23).

Regarding claim 9, Watanabe teaches that the panel has a value for R_{xs} that is between 1.8r and 5.8R (col. 10, lines 24-36).

Regarding claim 10, Watanabe teaches that the panel has a value for $R_{xs}/R_{ys} = 1.1$ (col. 10, lines 33-36).

Regarding claim 11, Watanabe teaches that the panel has a value for $R_{ys}/R_{yc} = 1.0$ (col. 14, lines 53-65).

Regarding claim 13, Watanabe teaches that the inside surface of the panel has radii of curvature that satisfy the condition $R_{xc} \geq R_{dc} \geq R_{yc}$ (see col. 9, lines 6-22).

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) in view of Kang et al. (US 6,806,636) as applied to claim 1, above, further in view of Pyun et al. (US 6,274,977).

Regarding claims 2-3, Watanabe and Kang do not specifically teach values for the thicknesses of the panel. However, Pyun lists thicknesses for a CRT including $T_x = 20\text{mm}$, $T_y = 20.8$, and $T_d = 25.4$ (see col. 3, lines 40-45). Pyun teaches that 15mm is an appropriate thickness of the center portion (T_c) (see col. 3, lines 47-51). Accordingly, Pyun teaches that $T_y/T_x = 1.0$ and $T_d/T_c = 1.7$. Pyun teaches that such peripheral thickness ratios contribute to reduce raster distortion and allow for a corresponding shadow mask with good structural strength (col. 3, lines

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65 – col. 4, line 2). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the panel taught by Watanabe with thicknesses taught by Pyun in order to provide a CRT with low raster distortion and a shadow mask having an appropriate structural strength.

Claim 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 6,433,470) in view of Kang et al. (US 6,806,636) as applied to claim 1, above, further in view of Hu et al. (US 6,072,270).

Regarding claim 7, Watanabe and Kang do not specifically teach a shadow mask having a thickness between .10 and .12 mm. However, shadow masks having a thickness of .12mm are known, as evidenced by the Hu reference (see the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a shadow mask having a thickness of .12mm in order to reduce manufacturing costs of the CRT.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is **(571) 272-2459**. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-24597. **The fax phone number for this Group is (703) 872-9306.**

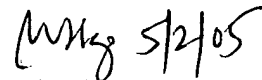
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May 02, 2005



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